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10/560,477	12/12/2005	Jill MacDonald Boyce	PU030170	3151

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EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,477	BOYCE ET AL.	
	Examiner	Art Unit	
	James A. Thompson	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2010, 14 Oct 2008, 12 Dec 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/12/05, 10/14/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Examiner has considered Applicant's traverse, filed 19 July 2010, of the Restriction Requirement mailed on 25 June 2010. Examiner withdraws the Restriction Requirement and has fully considered all of the pending claims.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The Information Disclosure Statements (PTO-1449) filed 12 December 2005 and 14 October 2008 have been fully considered by Examiner. Signed, initialed and dated copies are included with the present action.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 14 and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 14 recites a digital videodisc encoded with signal data. Non-functional descriptive material, such as mere data encoded on a disc, does not

fall into any of the statutory classes of invention. See MPEP § 2106.01(II). Claim 14 recites various detailed features of the signal data, but claim 14 is still merely data encoded on a disc, and is therefore non-statutory.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

a. Determining the scope and contents of the prior art.
b. Ascertaining the differences between the prior art and the claims at issue.
c. Resolving the level of ordinary skill in the pertinent art.
d. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 3-5 and 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa (EP 0 883 299 A2) in view of Barrett (US-2004/0034864).

Regarding claims 1, 10 and 13: Nakagawa discloses a video encoder for receiving input pictures **(fig. 1 and column 4, lines 36-45 of Nakagawa)** and providing compressed stream data **(column 5, lines 10-17 of Nakagawa)**, the encoder comprising: a normal encoding portion for receiving input pictures and providing normal stream data **(column 4, lines 43-45 and lines 54-58 of Nakagawa)**; a lower-quality encoding portion for receiving input pictures

and providing lower-quality stream data **(column 4, line 51 to column 5, line 3 and column 5, lines 10-17 of Nakagawa)**; and a multiplexer in signal communication with each of the normal and lower-quality portions for receiving and combining the normal and lower-quality data streams **(column 8, lines 3-11 of Nakagawa** - *normal and lower-quality data streams combined according to resolution selection controller, and stored frames are converted accordingly***)**.

Nakagawa does not disclose expressly that the lower-quality encoding portion provides *channel change* stream data; and that the multiplexer combines the normal and *channel change* data streams.

Barrett discloses encoding normal stream data and separately encoding channel change stream data **(fig. 5 and para. 6 of Barrett)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. Thus, by combination, the lower-quality encoding portion would provide *channel change* stream data, and the multiplexer would combine the normal and *channel change* data streams. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claims 1, 10 and 13.

Further regarding claim 10: The method of claim 10 is performed by the encoder of claim 1.

Further regarding claim 13: The apparatus of claim 13 is embodied by the encoder of claim 1.

Regarding claim 3: Nakagawa discloses a downsampling unit in signal communication with the lower-quality encoding portion for providing downsampled input pictures to the lower-quality encoding portion **(fig. 4 and column 5, lines 10-17 of Nakagawa)**.

Regarding claim 4: Nakagawa does not disclose expressly means for creating a channel change stream with more frequent intra-coded pictures in the channel change stream than in a corresponding normal stream.

Barrett discloses means for creating a channel change stream with more frequent intra-coded pictures in the channel change stream than in a corresponding normal stream **(para. 56 of Barrett** – *at least one previous I-picture is received for the channel change stream data in between the time when two normal stream I-pictures would be received, and is thus more frequent*).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, the channel change stream requiring more frequent intra-coded pictures, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream in the manner taught by Barrett would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 4.

Regarding claim 5: Nakagawa discloses means for downsampling to create lower resolution stream pictures **(fig. 4 and column 5, lines 10-17 of Nakagawa)**.

Nakagawa does not disclose expressly that the lower resolution stream pictures are lower resolution *channel change* stream pictures.

Barrett discloses encoding normal stream data and separately encoding lower-quality channel change stream data **(fig. 5 and para. 6 of Barrett)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 5.

Regarding claim 7: Nakagawa does not disclose expressly means for encoding channel change pictures into user data of corresponding normal stream pictures.

Barrett discloses means for encoding channel change pictures into user data of corresponding normal stream pictures **(fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – *channel change I-pictures are encoded in the fast tuning data block received with user's channel change request*).

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the

invention, it would have been obvious to a person of ordinary skill in the art to encode channel change pictures (I-pictures) along with the user's channel change request. The motivation for doing so would have been to reduce channel change latency. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 7.

Regarding claim 8: Nakagawa discloses means for signaling to a decoder whether to use normal stream or lower-quality stream pictures for subsequent lower-quality stream intra-coded pictures **(column 4, lines 51-53; and column 5, lines 10-17 and lines 22-28 of Nakagawa** – *lower-quality intra-coded pictures are stored and subsequently streamed based on the selection of high or low quality output***)**.

Nakagawa does not disclose expressly that the lower-quality stream is specifically a channel change stream.

Barrett discloses encoding normal stream data and separately encoding lower-quality channel change stream data **(fig. 5 and para. 6 of Barrett)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 8.

Regarding claims 9 and 12: Nakagawa discloses a picture selector in signal communication with the lower-quality encoding portion for selecting a subset of the input pictures to code in the lower-quality data stream **(column 4, line 48 to column 5, line 44 of Nakagawa** – *based on the outlined conditions, only particular input pictures are selected to be coded in the lower-quality data stream***)**.

Nakagawa does not disclose expressly that the selected subset of input pictures are coded in the *channel change* stream.

Barrett discloses encoding input pictures in a channel change stream **(fig. 5 and para. 6 of Barrett)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claims 9 and 12.

Regarding claim 11: Nakagawa in view of Barrett discloses the video encoding method further comprises at least one of: creating a channel change stream with more frequent intra-coded pictures in the channel change stream than in a corresponding normal stream; downsampling to create lower resolution channel change stream pictures **(fig. 4 and column 5, lines 10-17 of Nakagawa** – as per *the combination with Barrett set forth above in the rejection*

*of claims 1, 10 and 13, the lower-quality data stream of Nakagawa is specifically the channel change data stream of Barrett***)**; encoding redundant picture syntax in compliance with the JVT standard; encoding channel change pictures into user data of corresponding normal stream pictures **(fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – *channel change I-pictures are encoded in the fast tuning data block received with user's channel change request***)**; and signaling to a decoder whether to use normal stream or channel change stream pictures for subsequent channel change stream intra-coded pictures **(column 4, lines 51-53; and column 5, lines 10-17 and lines 22-28 of Nakagawa** – *lower-quality intra-coded pictures are stored and subsequently streamed based on the selection of high or low quality output; again,* as per *the combination with Barrett set forth above in the rejection of claims 1, 10 and 13, the lower-quality data stream of Nakagawa is specifically the channel change data stream of Barrett***) (three of the five steps are taught by the combination of Nakagawa and Barrett, and only one is required by the language of claim 11)**.

Regarding claim 14: Nakagawa discloses a digital video medium encoded with signal data **(column 4, lines 38-43 of Nakagawa)** comprising a plurality of block transform coefficients for each of normal stream and lower-quality stream data **(column 4, lines 48-53 and column 6, lines 5-16 of Nakagawa)**, the coefficients indicative of an original signal data sequence **(column 5, line 58 to column 6, line 7 of Nakagawa)**, the normal stream data of the digital video medium having coefficients embodying a normal quality data sequence, and the lower-quality stream of the digital video medium having coefficients embodying a reduced-quality data sequence **(column 5, lines 56 to column 6, line 2 of Nakagawa** – *block coefficients determined partly based on high or low quality video selection***)**.

Nakagawa does not disclose expressly that the digital video medium is specifically a digital videodisc; the lower-quality stream data is specifically channel change stream data; and the reduced-quality data sequence comprises at least one additional intra-coded picture.

Barrett discloses a digital videodisc encoded with signal data **(para. 46, lines 4-12 of Barrett** – *video stored on any one of a variety of types of disk-based storage devices, which would include a digital videodisc***)**; encoding normal stream data and separately encoding lower-quality channel change stream data **(fig. 5 and para. 6 of Barrett)**; and the reduced-quality data sequence comprises at least one additional intra-coded picture **(para. 56 of Barrett** – *at least one previous I-picture is received for the channel change stream data***)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, the channel change stream requiring at least one additional intra-coded picture, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to encode the signal data specifically on a digital videodisc. Digital videodiscs are commonly-used means of digital video data storage and the use of a digital videodisc would yield predictable results. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 14.

Regarding claim 15: Nakagawa does not disclose expressly wherein the reduced-quality data sequence is encoded in the picture user data.

Barrett discloses means for encoding reduced-quality data sequence into picture user data **(fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – *channel change I-pictures are encoded in the fast tuning data block received with user's channel change request***)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to encode channel change pictures (I-pictures) along with the user's channel change request. The motivation for doing so would have been to reduce channel change latency. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 15.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa (EP 0 883 299 A2) in view of Barrett (US-2004/0034864) and Nozawa (US-6,587,505).

Regarding claim 2: Nakagawa in view of Barrett does not disclose expressly a low-pass filter in signal communication with the lower-quality encoding portion for providing low-pass filtered input pictures to the lower-quality encoding portion.

Nozawa discloses a low-pass filter in signal communication with a lower-quality encoding portion for providing low-pass filtered input pictures to the lower-quality encoding portion **(fig. 8 and column 10, lines 49-60 of Nozawa)**.

Nakagawa in view of Barrett is analogous art with respect to Nozawa because they are from the same field of endeavor, namely selective encoding and output of low-resolution and

high-resolution video image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to low-pass filter the signal to be input into the lower-quality encoding portion. The motivation for doing so would have been to pass the components that are needed for the lower resolution signal, rather than requiring a more complex computation when encoding the input video as lower-quality video. Therefore, it would have been obvious to combine Nozawa with Nakagawa in view of Barrett to obtain the invention as specified in claim 2.

9. Claims 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa (EP 0 883 299 A2) in view of Barrett (US-2004/0034864) and well-known prior art.

Regarding claim 6: Nakagawa in view of Barrett does not disclose expressly means for encoding redundant picture syntax in compliance with the JVT standard.

OFFICIAL NOTICE is taken that encoding redundant picture syntax in compliance with the JVT standard is old, well-known and expected in the art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to do so since the JVT standard is a commonly used standard for encoding video data so as to reduce redundancies between frames. Therefore, it would have been obvious to combine the well-known prior art with Nakagawa in view of Barrett to obtain the invention as specified in claim 6.

Regarding claim 14: Nakagawa discloses a digital video medium encoded with signal data **(column 4, lines 38-43 of Nakagawa)** comprising a plurality of block transform coefficients for each of normal stream and lower-quality stream data **(column 4, lines 48-53 and**

column 6, lines 5-16 of Nakagawa), the coefficients indicative of an original signal data sequence **(column 5, line 58 to column 6, line 7 of Nakagawa)**, the normal stream data of the digital video medium having coefficients embodying a normal quality data sequence, and the lower-quality stream of the digital video medium having coefficients embodying a reduced-quality data sequence **(column 5, lines 56 to column 6, line 2 of Nakagawa** – *block coefficients determined partly based on high or low quality video selection***)**.

Nakagawa does not disclose expressly that the digital video medium is specifically a digital videodisc; the lower-quality stream data is specifically channel change stream data; and the reduced-quality data sequence comprises at least one additional intra-coded picture.

Barrett discloses a digital videodisc encoded with signal data **(para. 46, lines 4-12 of Barrett** – *video stored on any one of a variety of types of disk-based storage devices, which would include a digital videodisc***)**; encoding normal stream data and separately encoding lower-quality channel change stream data **(fig. 5 and para. 6 of Barrett)**; and the reduced-quality data sequence comprises at least one additional intra-coded picture **(para. 56 of Barrett** – *at least one previous I-picture is received for the channel change stream data***)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between normal stream data and channel change stream data, the channel change stream requiring at least one additional intra-coded picture, as taught by Barrett. The suggestion for doing so would have been that utilizing the channel change stream as the alternate data stream, as taught by Barrett, would reduce channel change latency while maintaining an acceptable level of image quality.

Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to encode the signal data specifically on a digital videodisc. Digital videodiscs are commonly-used means of digital video data storage and the use of a digital videodisc would yield predictable results. Therefore, it would have been obvious to combine Barrett with Nakagawa.

Further, even assuming the *arguendo* that the list of possible digital video data storage devices (see para. 46, lines 4-12 of Barrett, wherein several example storage devices along with the open-ended phrase "and so on") does not necessarily include a digital videodisc, **OFFICIAL NOTICE is taken** that digital videodiscs (such as VCD's and DVD's) are old, well-known and expected in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to encode the signal data specifically on a digital videodisc since, as stated above, digital videodiscs are commonly-used means of digital video data storage and the use of a digital videodisc would yield predictable results. Therefore, it would have been obvious to combine the well-known prior art with Nakagawa in view of Barrett to obtain the invention as specified in claim 14.

Regarding claim 15: Nakagawa does not disclose expressly wherein the reduced-quality data sequence is encoded in the picture user data.

Barrett discloses means for encoding reduced-quality data sequence into picture user data **(fig. 5; fig. 6; para. 59; and para. 66 of Barrett** – *channel change I-pictures are encoded in the fast tuning data block received with user's channel change request***)**.

Nakagawa and Barrett are analogous art because they are from the same field of endeavor, namely control and switching of digital video data streams. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to encode channel

change pictures (I-pictures) along with the user's channel change request. The motivation for doing so would have been to reduce channel change latency. Therefore, it would have been obvious to combine Barrett with Nakagawa to obtain the invention as specified in claim 15.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/
Primary Examiner, Art Unit 2625

19 September 2010